

NOTE: IRRIGATION DESIGN BASED UPON RAINBIRD IRRIGATION CORP. EQUIPMENT AND DESIGN SPECIFICATIONS. CONTRACTOR MAY SUBMIT ALTERNATES FOR APPROVAL BY THE LANDSCAPE ARCHITECT AND COTR PRIOR TO BID.

NOTE: IRRIGATION PIPES AND EQUIPMENT LOCATIONS SHOWN ARE SCHEMATIC. CONTRACTOR SHALL LOCATE ALL PIPES & EQUIPMENT WITHIN LANDSCAPE AREAS EXCEPT AT SPECIFIED SLEEVE CROSSINGS. ALL PIPES SHALL BE TRENCHED TOGETHER TO GREATEST EXTENT POSSIBLE. ALL VALVES SHALL BE LOCATED IN CLUSTERS BY THE CONTRACTOR TO GREATEST EXTENT POSSIBLE.

IRRIGATION SYMBOL LEGEND

- REMOTE CONTROL VALVE (SIZE VARIES)
- 1" DRIP IRRIGATION VALVE
- PIPE JUMP
- RAIN SENSOR
- FLUSH VALVE
- RAINBIRD 1300A-F TREE BUBBLER
FLOW GPM: 2.0 GPM
- RAINBIRD 1806-SAM-PRS SERIES
POP-UP SPRINKLER W/ R17-24 ROTARY
NOZZLE AT 21' RADIUS. FLOW GPM:
Q: 75 GPM
H: 1.50 GPM
TQ: 2.25 GPM
F: 3.00 GPM
- RAINBIRD 1806-SAM-PRS SERIES
POP-UP SPRINKLER W/ U-15 SERIES
NOZZLE. FLOW GPM:
Q: 92 GPM
T: 1.23 GPM
H: 1.85 GPM
TQ: 2.78 GPM
F: 3.70 GPM
- RAINBIRD 1806-SAM-PRS SERIES
POP-UP SPRINKLER W/ U-8 SERIES
NOZZLE. FLOW GPM:
Q: 26 GPM
H: 52 GPM

IRRIGATION SCHEDULE

ZONE	TYPE	GPM
1	BUBBLERS	64.0
2	BUBBLERS	52.0
3	BUBBLERS	56.0
4	BUBBLERS	50.0
5	BUBBLERS	46.0
6	DRIELINE	3.2
7	DRIELINE	4.3
8	DRIELINE	14.6
9	DRIELINE	6.1
10	TURFSpray	50.8
11	TURFSpray	63.8
12	TURFSpray	44.1
13	TURFSpray	53.6
14	ROTOR NOZZLE	38.3
15	ROTOR NOZZLE	32.2

- MAINLINE: PVC SCHEDULE 40
- LATERAL: PVC CLASS 200
- PIPE SLEEVE: PVC SCHEDULE 40; MIN. 2X PIPE SIZE
- DRIP IRRIGATION AREA
- ZONE #
- XX.X GPM
- ZONE CALLOUTS

Revisions

Date

CIVIL ENGINEER/LANDSCAPE ARCHITECTURE:

ARCHITECTURE:

MAP ENGINEER:

SURVEY:

MACTEC
MACTEC ENGINEERING AND CONSULTING, INC.
3200 TOWN POINT DR., KENNESAW, GA. 30144
TEL: (770) 421-3400 FAX: (770) 421-3486
MACTEC PROJECT: 6151-10-0085

MATRIX SETTLES
1220 N. FILLMORE ST.
SUITE 300
ARLINGTON, VA 22211
703-525-0424

Thompson Company
consulting engineers
50 Technology Parkway South
Norcross, Georgia 30092
Atlanta, GA 30309
Dubai, UAE
404.266.1400
www.tcieng.com
Houston, TX 77058
Tortola, BVI

HALDER SURVEYS
10400 CHESTER ROAD, CHESTER, VA 23831
TEL: (804) 748-8707 FAX: (804) 748-8708

NATIONAL CEMETERY ADMINISTRATION

Drawing Title

IRRIGATION PLAN

Approved: Director, Technical Support Service

Approved: Chief, Architectural & Engineering Division

Project Title

ADMINISTRATION / PUBLIC INFORMATION BUILDING
QUANTICO NATIONAL CEMETERY

Building Number

Checked

Drawn

Location

18424 JOPLIN ROAD
TRIANGLE, VIRGINIA

Date

07-30-12

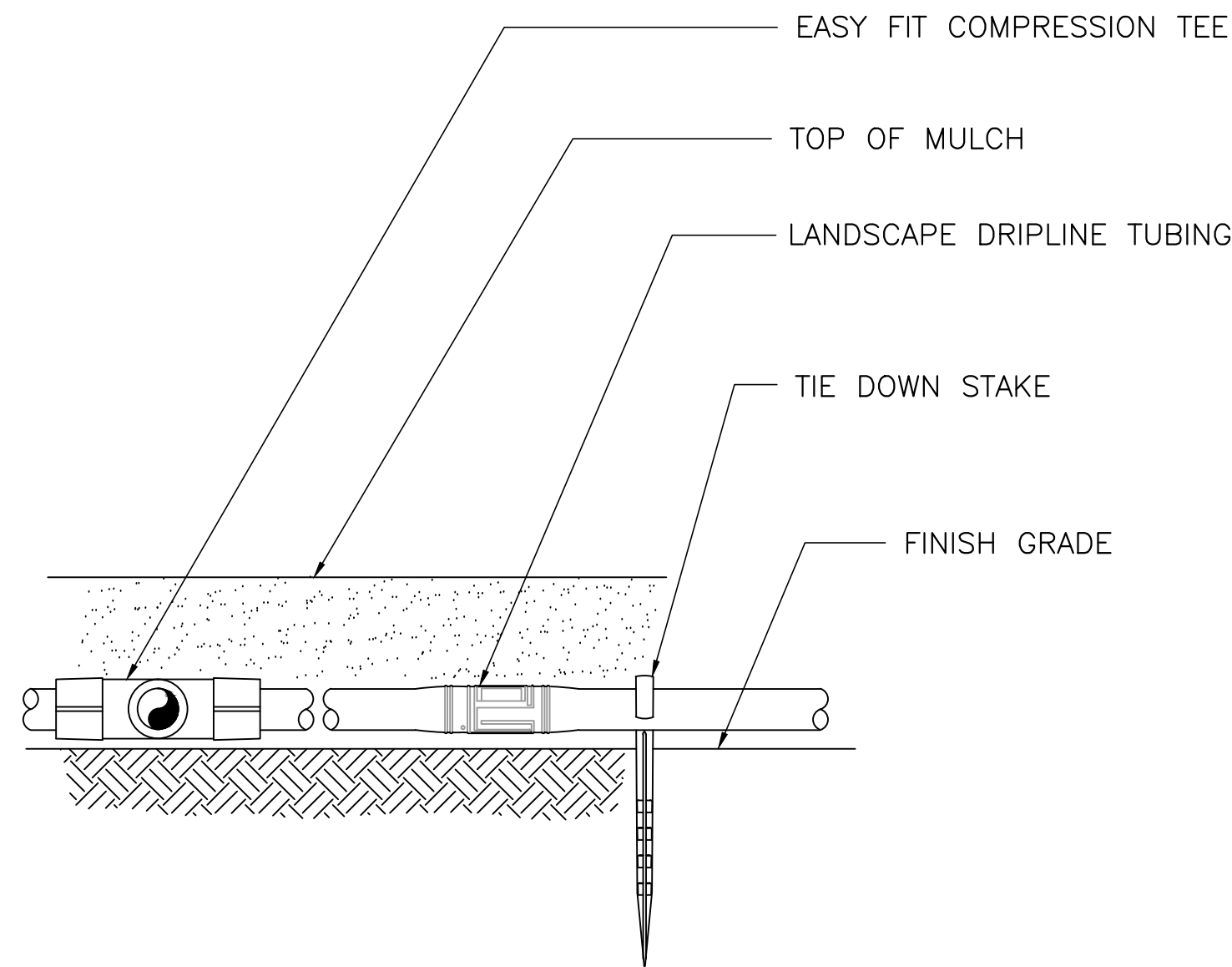
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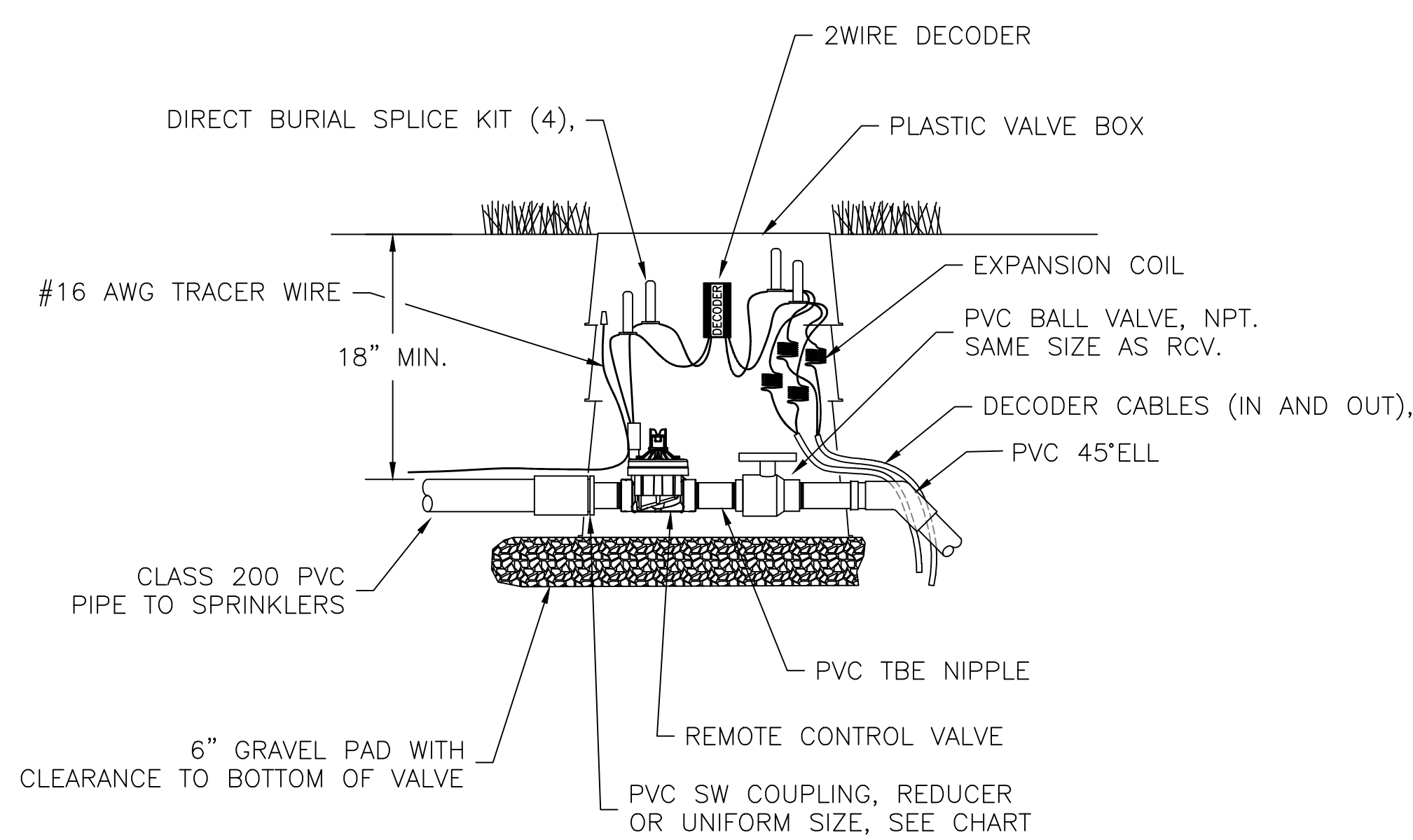
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L-101

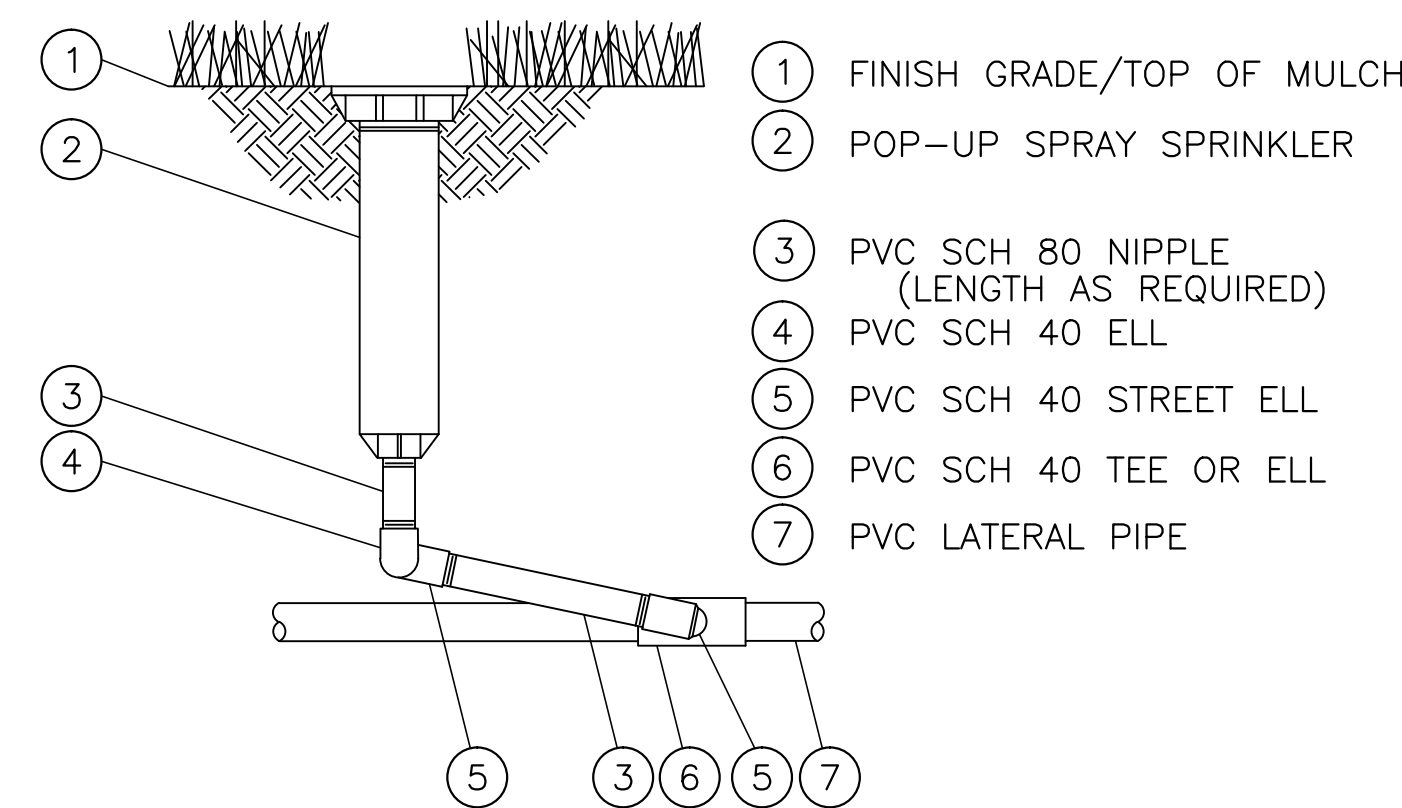
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A LANDSCAPE DRIPLINE ON GRADE
N.T.S. 8-12-04
POTABLE SYSTEM

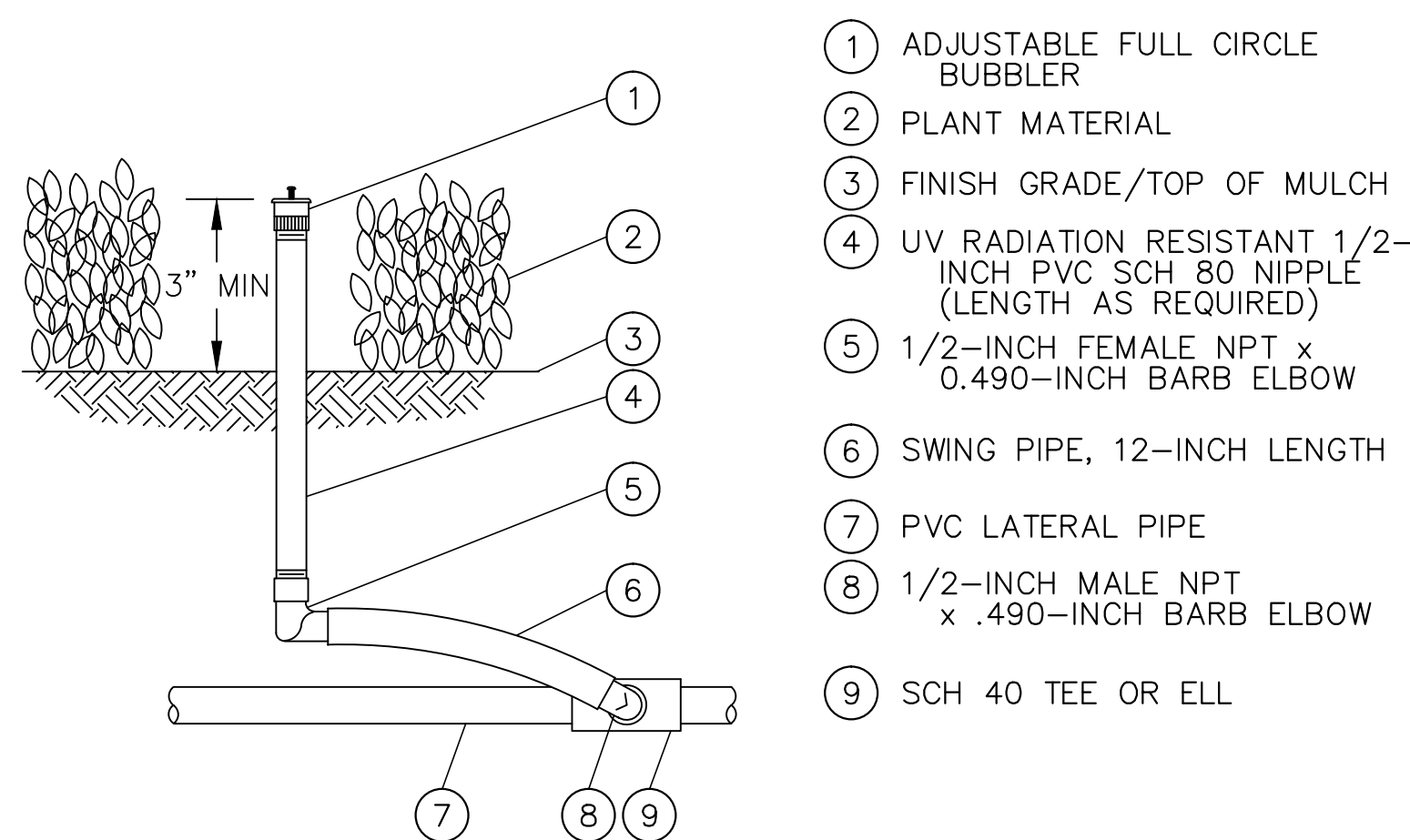


C REMOTE-CONTROL VALVE ASSEMBLY
N.T.S.



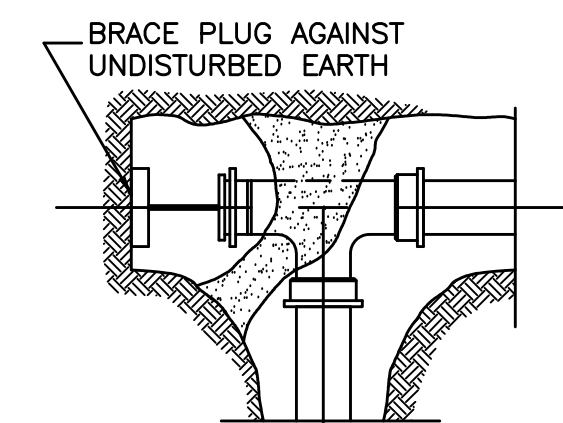
D POP-UP SPRAY SPRINKLER
N.T.S. 4-13-04

S-1804-SJ.DWG

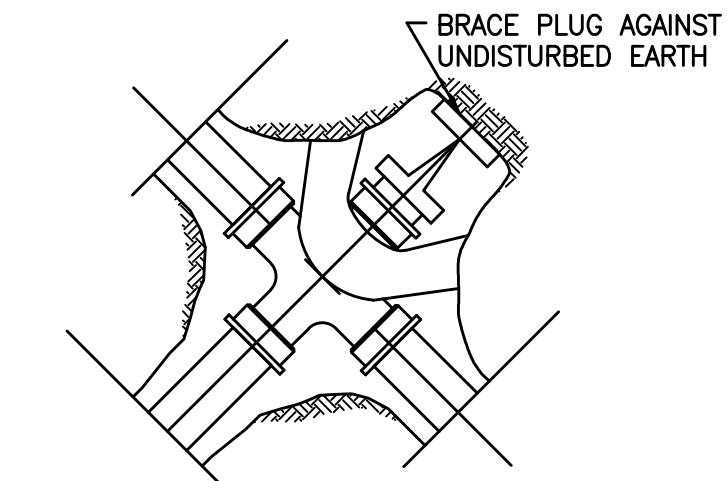


E ADJUSTABLE FULL CIRCLE BUBBLER
N.T.S. 1-08-04

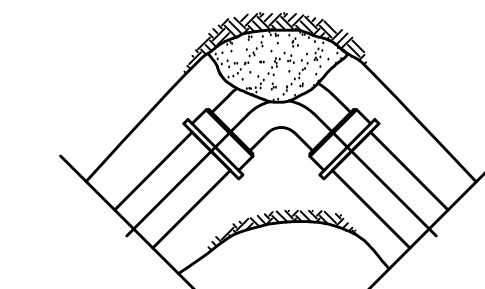
N-1300A-F.DWG



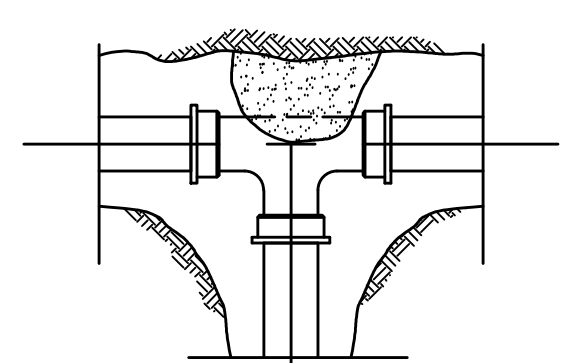
PLUGGED TEE
NOT TO SCALE



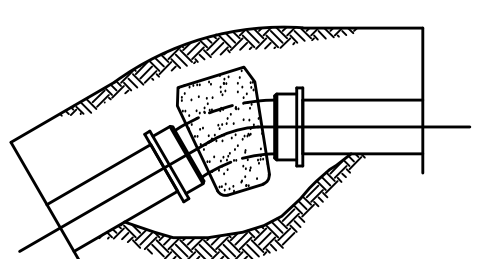
PLUGGED CROSS
NOT TO SCALE



90° ELBOW
NOT TO SCALE



TEE
NOT TO SCALE



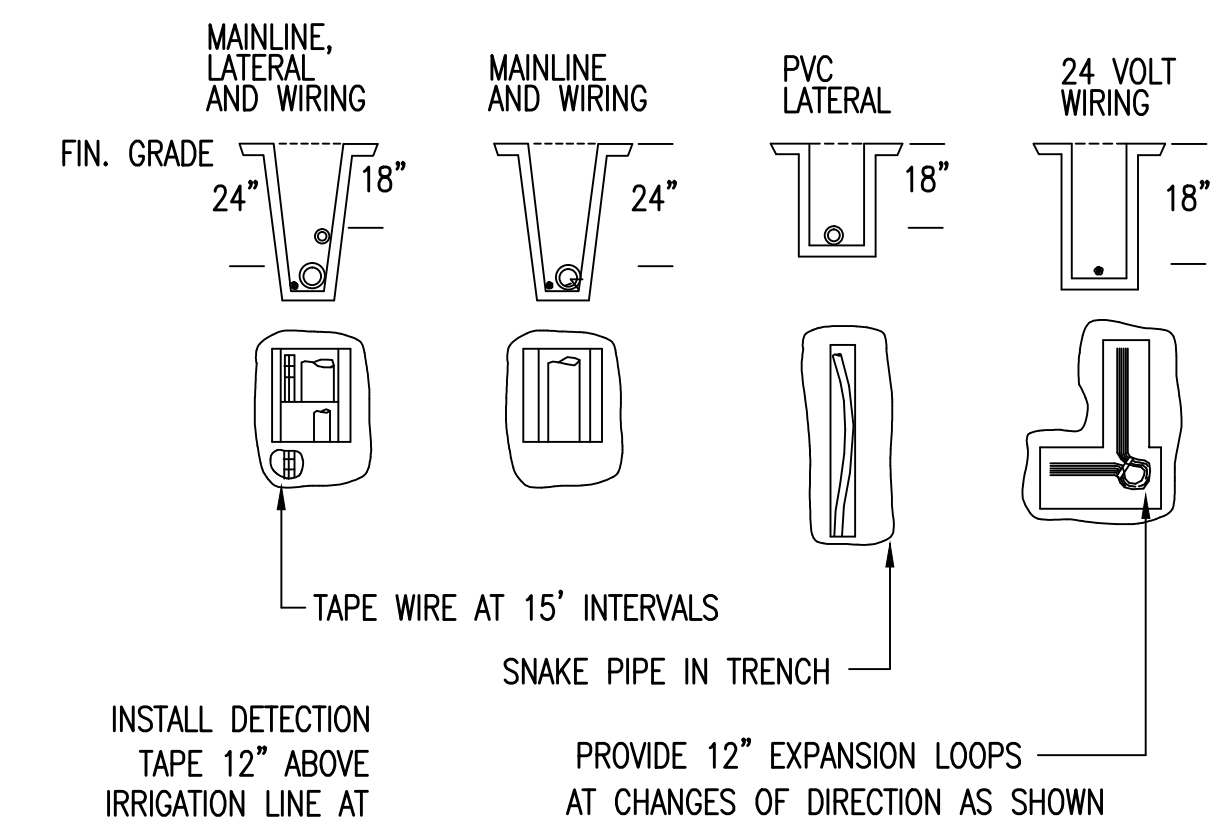
VERTICAL BEND
NOT TO SCALE

BEARING AREAS				
	TEE OR CAP	90° BEND	45° BEND	22.5° BEND
2"	1.0 S.F.	1.0 S.F.	1.0 S.F.	1.0 S.F.
3"	1.3 S.F.	1.8 S.F.	1.0 S.F.	1.0 S.F.
4"	2.7 S.F.	3.7 S.F.	1.9 S.F.	1.0 S.F.
6"	4.9 S.F.	6.9 S.F.	3.7 S.F.	1.9 S.F.
8"	8.1 S.F.	11.3 S.F.	6.2 S.F.	3.2 S.F.
10"	11.7 S.F.	16.4 S.F.	8.9 S.F.	4.6 S.F.

NOTE: MIN. THICKNESS OF THRUST BLOCKS TO BE 12 INCHES WITH AREA AS ABOVE.

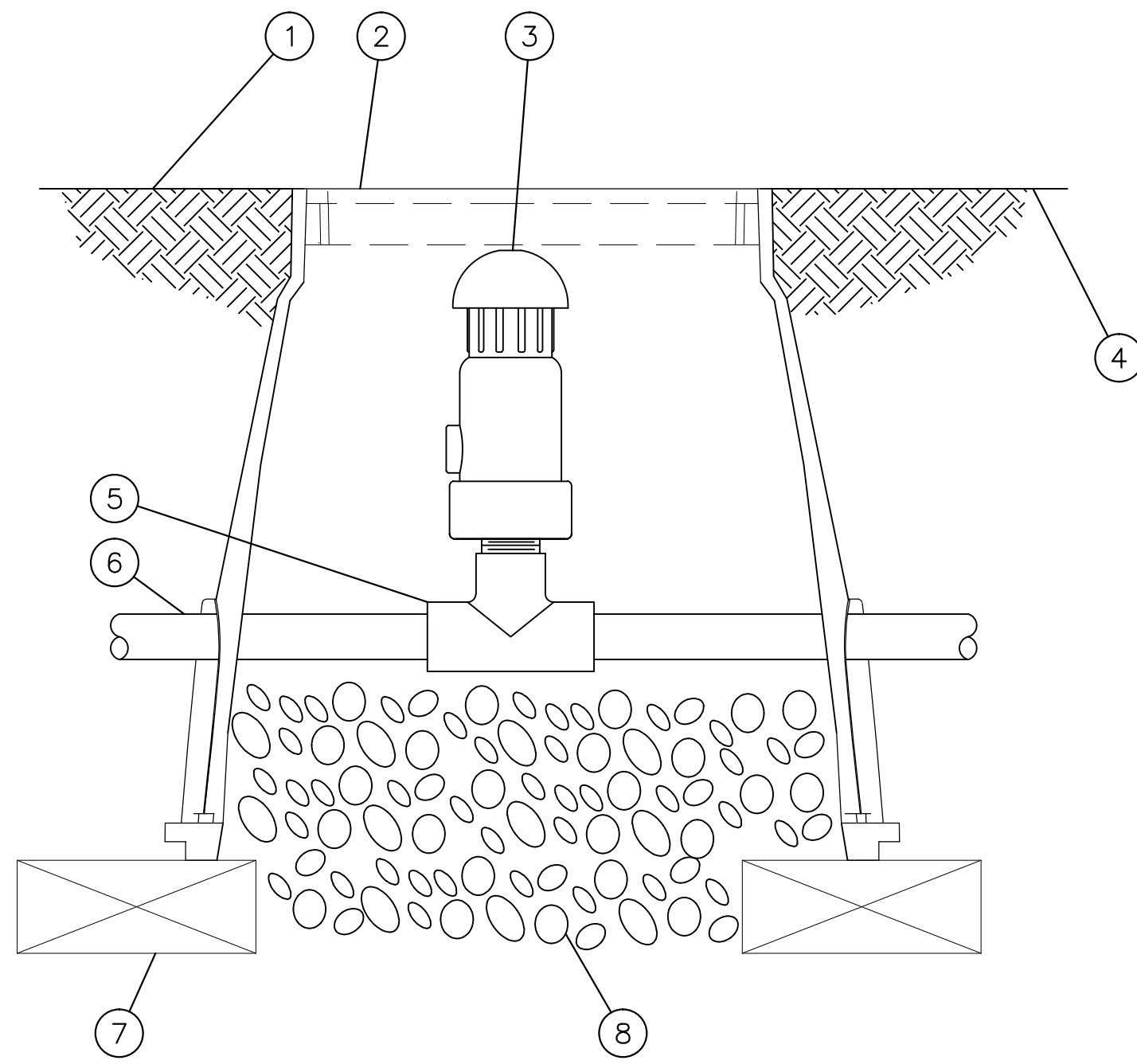
NOTE: ALL BLOCKS BEAR AGAINST UNDISTURBED EARTH.

F TYPICAL THRUST BLOCK
N.T.S.

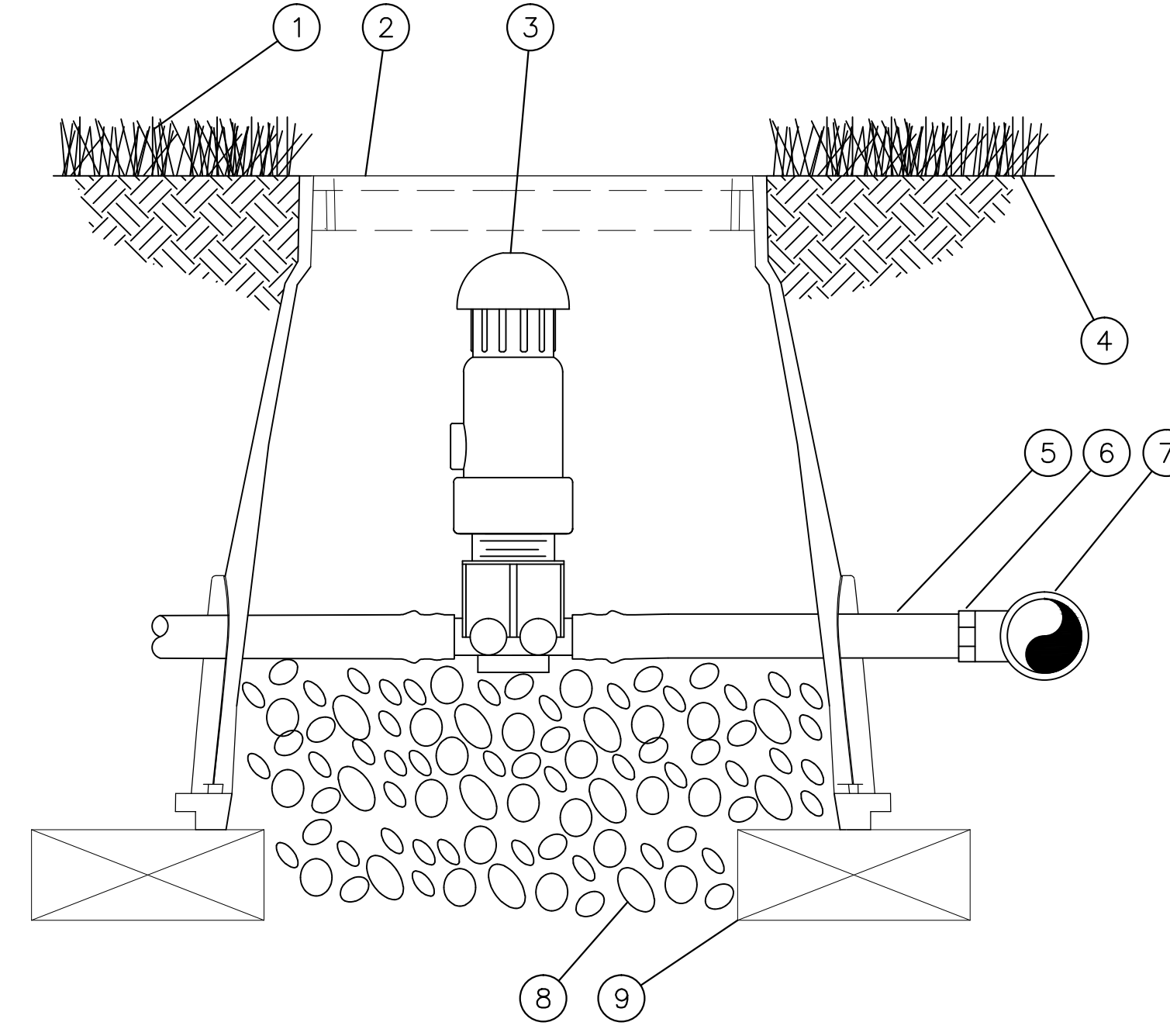


G TRENCH AND WIRE DETAIL
N.T.S.

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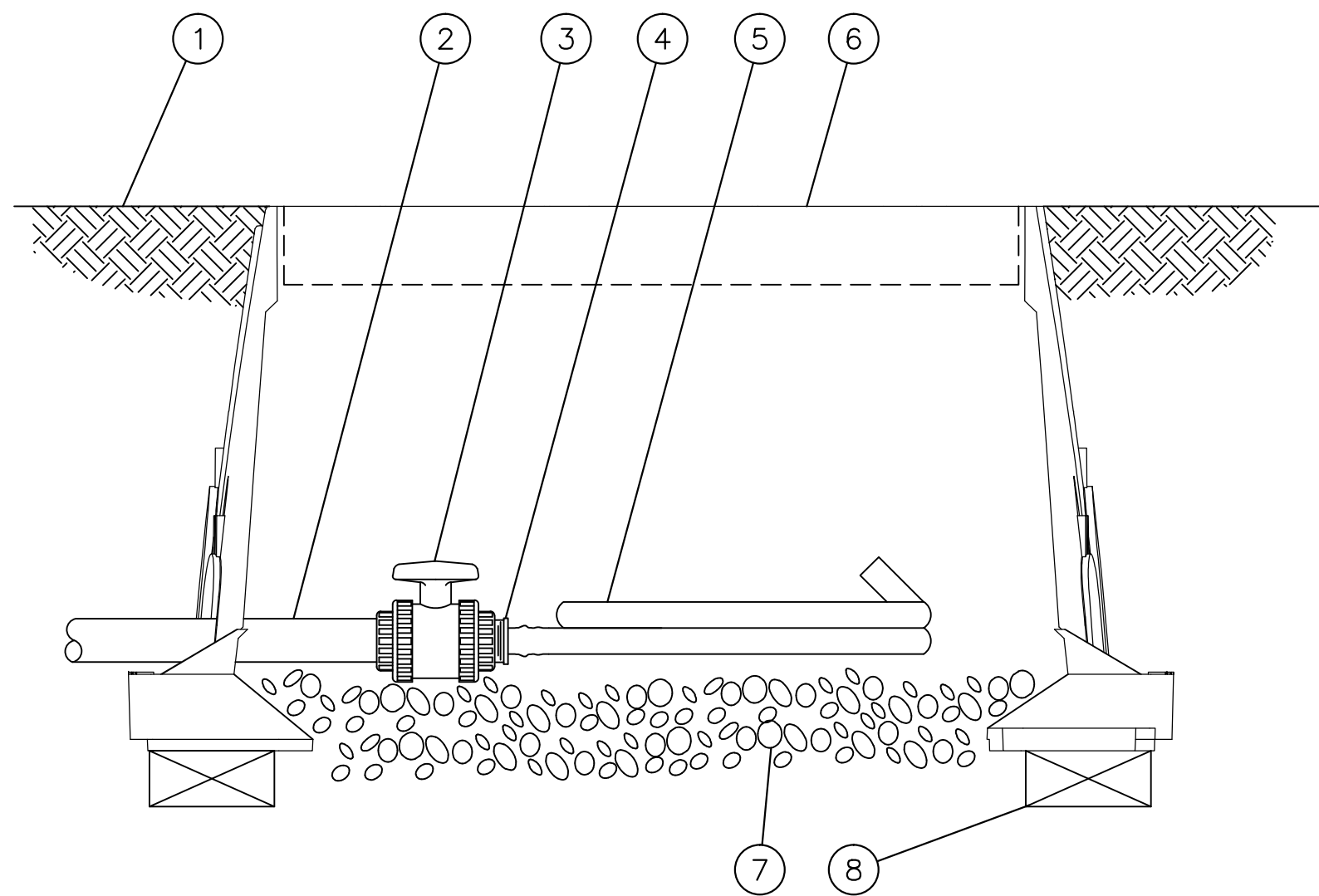
- 1 FINISH GRADE
- 2 SUBTERRANEAN EMITTER BOX
- 3 AIR/VACUUM RELIEF VALVE KIT:
TO BE INSTALLED AT HIGH POINT
IN DRIP ZONE AS REQUIRED
- 4 FINISH GRADE
- 5 PVC SCH 40 TEE
- 6 PVC HEADER PIPE
- 7 BRICK (1 OF 2)
- 8 3" MINIMUM DEPTH OF
3/4" WASHED GRAVEL



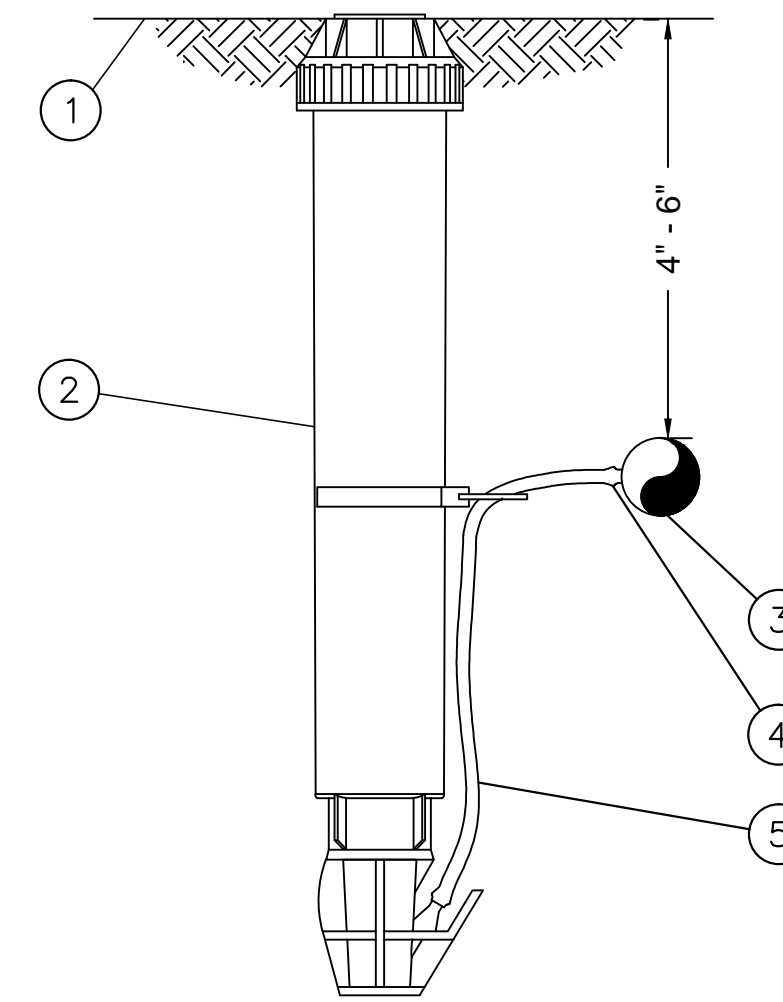
- 1 TURF GRASS
- 2 SUBTERRANEAN EMITTER BOX
- 3 AIR/VACUUM RELIEF VALVE KIT
- 4 FINISH GRADE
- 5 1/2" BLANK DRIPLINE TUBING
- 6 BARB X MALE THREAD CONNECTOR
- 7 PVC TEE CONNECTED TO PVC
HEADER PIPE
- 8 3" MINIMUM DEPTH OF
3/4" WASHED GRAVEL
- 9 BRICK (1 OF 2)

A XFS SUB-SURFACE DRIPLINE
N.T.S. AIR/VACCU RELIEF VALVE KIT IN PVC HEADER

C XFS SUB-SURFACE DRIPLINE
N.T.S. AIR/VACCU RELIEF VALVE KIT IN XFS DRIPLINE



- 1 FINISH GRADE
- 2 PVC DRIP MANIFOLD PIPE
- 3 PVC 1" X 3/4" TRUE UNION BALL VALVE
- 4 EASY FIT MALE X BARB ADAPTER
- 5 SUB-SURFACE DRIPLINE
- 6 12-INCH VALVE BOX WITH COVER
- 7 3-INCH MINIMUM DEPTH OF
3/4" WASHED GRAVEL
- 8 BRICK (1 OF 2)








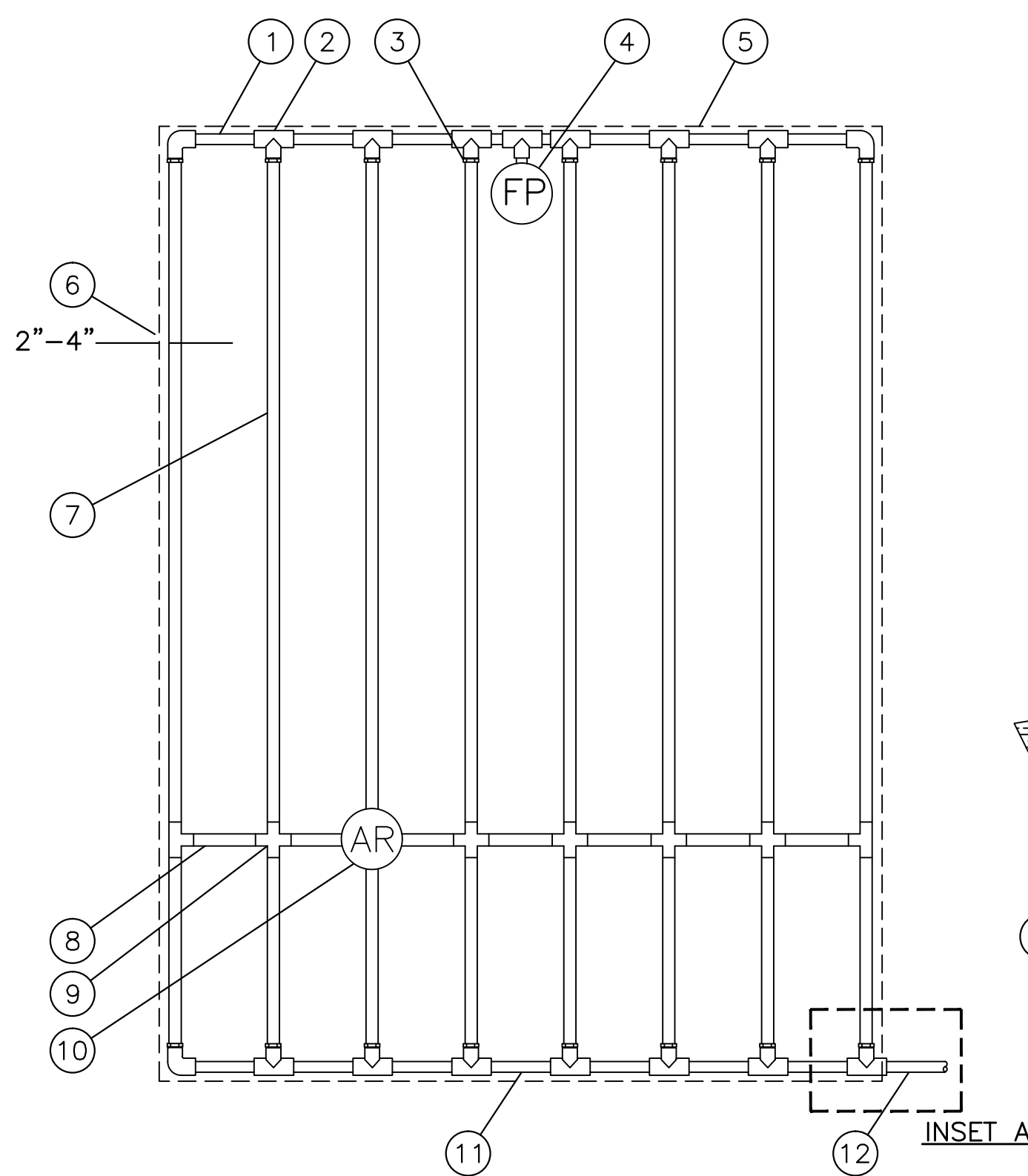
- 1 FINISH GRADE/TURF
- 2 MICRO-SPRAY POP-UP
- 3 SUB-SURFACE DRIPLINE
- 4 1/4" BARB TRANSFER FITTING
- 5 1/4" DISTRIBUTION TUBING
(LENGTH AS REQUIRED)

NOTE:
1. USE XERIMAN TOOL XM-TOOL TO INSERT BARB TRANSFER
FITTING DIRECTLY INTO DRIPLINE TUBING.

D XFS SUB-SURFACE DRIPLINE
N.T.S. OPERATION INDICATOR

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Revisions	Date	CIVIL ENGINEER/LANDSCAPE ARCHITECTURE:		ARCHITECTURE:		MEP ENGINEER:		SURVEY:		 NATIONAL CEMETERY ADMINISTRATION	Drawing Title	Project Title		Date		
		 MACTEC ENGINEERING AND CONSULTING, INC. 3200 TOWN POINT DR., KENNESAW, GA. 30144 TEL: (770) 421-3400 FAX: (770) 421-3486		 MATRIX SETTLES 1220 N. FILLMORE ST. SUITE 300 ARLINGTON, VA 22211 703-525-0424		 Thompson Company consulting engineers 50 Technology Parkway South Norcross, Georgia 30092 Atlanta, GA 30328 Dubai, UAE		 10400 CHESTER ROAD, CHESTER, VA 23831 TEL: (804) 748-8707 FAX: (804) 748-8708			IRRIGATION DETAILS 2 OF 3	ADMINISTRATION / PUBLIC INFORMATION BUILDING QUANTICO NATIONAL CEMETERY		07-30-12		
		MACTEC PROJECT: 6151-10-0085									Approved: Director, Technical Support Service	Building Number	Checked CAP	Drawn GKC	Project No. 872CM3035	
											Approved: Chief, Architectual & Engineering Division	Location 18424 JOPLIN ROAD TRIANGLE, VIRGINIA		DRAWING NO. L-502	Dwg. 34 of 80	

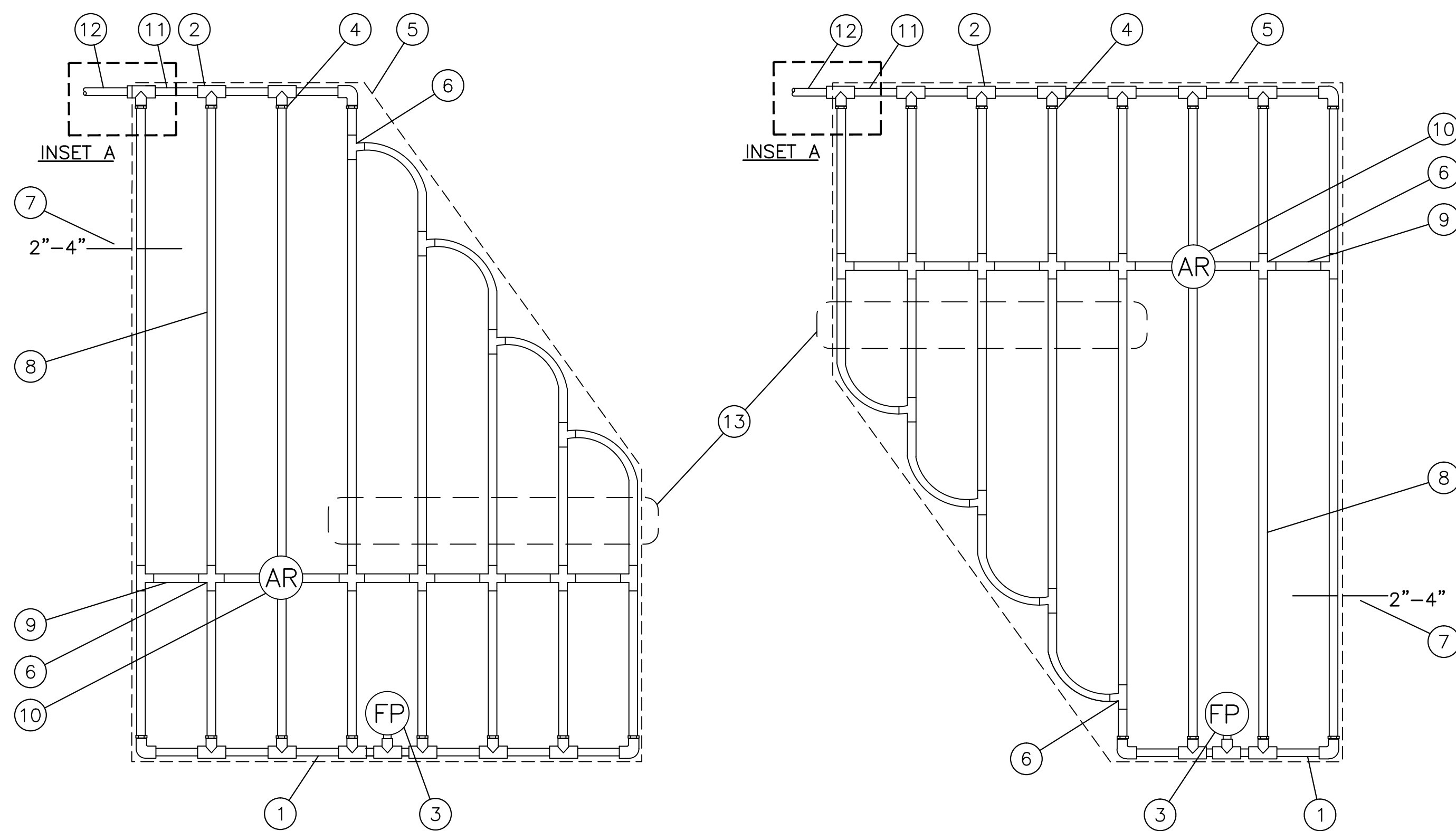


- ① PVC EXHAUST HEADER
- ② PVC SCH 40 TEE OR EL (TYPICAL)
- ③ BARB X MALE FITTING
- ④ FLUSH POINT (TYPICAL)
- ⑤ PERIMETER OF AREA
- ⑥ PERIMETER DRIPLINE PIPE TO BE INSTALLED 2"-4" FROM PERIMETER OF AREA
- ⑦ SUB-SURFACE DRIPLINE
- ⑧ ½" POLYETHYLENE BLANK TUBING
- ⑨ BARB X BARB INSERT TEE OR CROSS:
- ⑩ AIR RELIEF VALVE
- ⑪ PVC SUPPLY HEADER
- ⑫ PVC DRIP MANIFOLD FROM CONTROL ZONE VALVE KIT (SIZED TO MEET LATERAL FLOW DEMAND)
- ⑬ PVC SCH 40 RISER PIPE

NOTES:
1. DISTANCE BETWEEN LATERAL ROWS AND EMITTER SPACING TO BE 18" O.C.
EMITTERS SHOULD BE PLACED ONLY AS NEEDED TO ACCOMPANY TARGETED SHRUBS AND GROUNDCOVERS AT THE FOLLOWING RATES PER PLANT SIZE:
1 GAL: 1 EMITTER
3 GAL-5 GAL: 2 EMITTERS
>7 GAL: 3 EMITTERS
2. LENGTH OF LONGEST DRIPLINE LATERAL SHOULD NOT EXCEED THE MAXIMUM LENGTH SHOWN IN THE ACCOMPANYING TABLE.
3. AIR RELIEF VALVE TO BE INSTALLED AT HIGH POINT OF AREA AS NEEDED.

XFS Dripline Maximum Lateral Lengths (Feet)						
Inlet Pressure psi	12" Spacing		18" Spacing		24" Spacing	
	Nominal Flow (GPH)		Nominal Flow (GPH)		Nominal Flow (GPH)	
	0.6	0.9	0.6	0.9	0.6	0.9
15	255	194	357	273	448	343
20	291	220	408	313	514	394
30	350	266	494	378	622	478
40	396	302	560	428	705	541
50	434	333	614	470	775	594

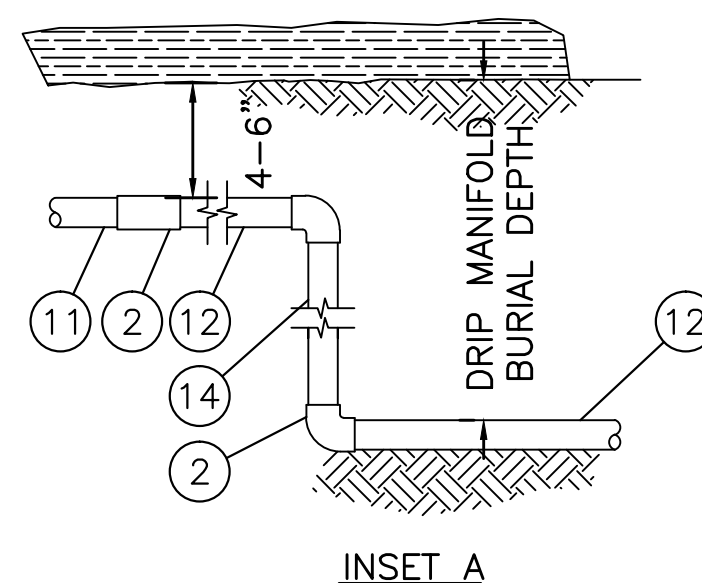
A XFS SUB-SURFACE DRIPLINE
N.T.S. END FEED LAYOUT 10-27-10



- ① PVC EXHAUST HEADER
- ② PVC SCH 40 TEE OR EL (TYPICAL)
- ③ FLUSH POINT (TYPICAL)
- ④ BARB X MALE FITTING
- ⑤ PERIMETER OF AREA
- ⑥ BARB X BARB INSERT TEE OR CROSS
- ⑦ PERIMETER DRIPLINE PIPE TO BE INSTALLED 2"-4" FROM PERIMETER OF AREA
- ⑧ SUB-SURFACE DRIPLINE
- ⑨ ½" POLYETHYLENE BLANK TUBING
- ⑩ AIR RELIEF VALVE
- ⑪ PVC SUPPLY MANIFOLD
- ⑫ PVC SUPPLY PIPE FROM CONTROL ZONE KIT (SIZED TO MEET LATERAL FLOW DEMAND)
- ⑬ TOTAL LENGTH OF SELECTED DRIPLINE SHOULD NOT EXCEED LENGTH SHOWN IN TABLE
- ⑭ PVC SCH 40 RISER PIPE

NOTES:
1. DISTANCE BETWEEN LATERAL ROWS AND EMITTER SPACING TO BE 18" O.C.
EMITTERS SHOULD BE PLACED ONLY AS NEEDED TO ACCOMPANY TARGETED SHRUBS AND GROUNDCOVERS AT THE FOLLOWING RATES PER PLANT SIZE:
1 GAL: 1 EMITTER
3 GAL-5 GAL: 2 EMITTERS
>7 GAL: 3 EMITTERS
2. LENGTH OF LONGEST DRIPLINE LATERAL SHOULD NOT EXCEED THE MAXIMUM LENGTH SHOWN IN THE ACCOMPANYING TABLE.
3. AIR RELIEF VALVE TO BE INSTALLED AT HIGH POINT OF AREA AS NEEDED.

B XFS SUB-SURFACE DRIPLINE
N.T.S. IRREGULAR SHAPED LAYOUT 10-27-10



XFS Dripline Maximum Lateral Lengths (Feet)						
Inlet Pressure psi	12" Spacing		18" Spacing		24" Spacing	
	Nominal Flow (GPH)		Nominal Flow (GPH)		Nominal Flow (GPH)	
	0.6	0.9	0.6	0.9	0.6	0.9
15	255	194	357	273	448	343
20	291	220	408	313	514	394
30	350	266	494	378	622	478
40	396	302	560	428	705	541
50	434	333	614	470	775	594

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